Title: ROUTER DEVICE AND LABEL
SWITCHED PATH CONTROL METHOD USING
UPSTREAM INITIATED AGGREGATION
Inventor(s): Kenichi NAGAMI et al.
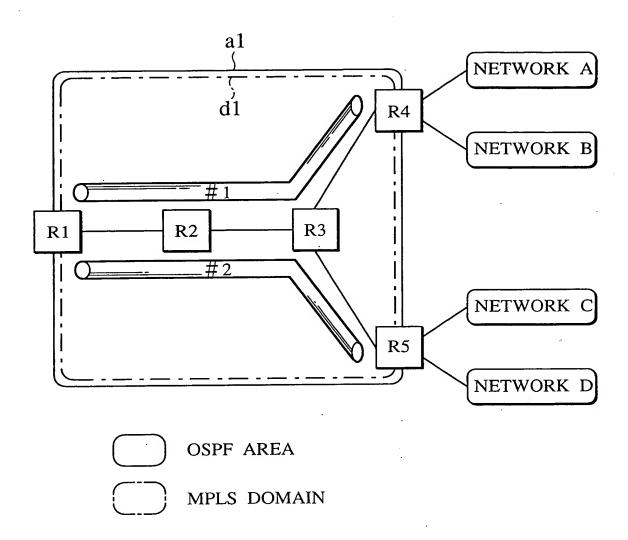DOCKET NO.: 040301-0640

1/16

FIG.1

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DOCKET NO.: 040301-0640

2/16

FIG.2A

EGRESS ROUTER
R4
R5

FIG.2B

DESTINATION	LSP
NETWORK A	#1
NETWORK B	#1
NETWORK C	#2
NETWORK D	#2
R4	#1
R5	#2

FIG.2C

EGRESS ROUTER	NETWORK	LSP
R4	R4, NETWORK A, NETWORK B	#1
R5	R5, NETWORK C, NETWORK D	#2

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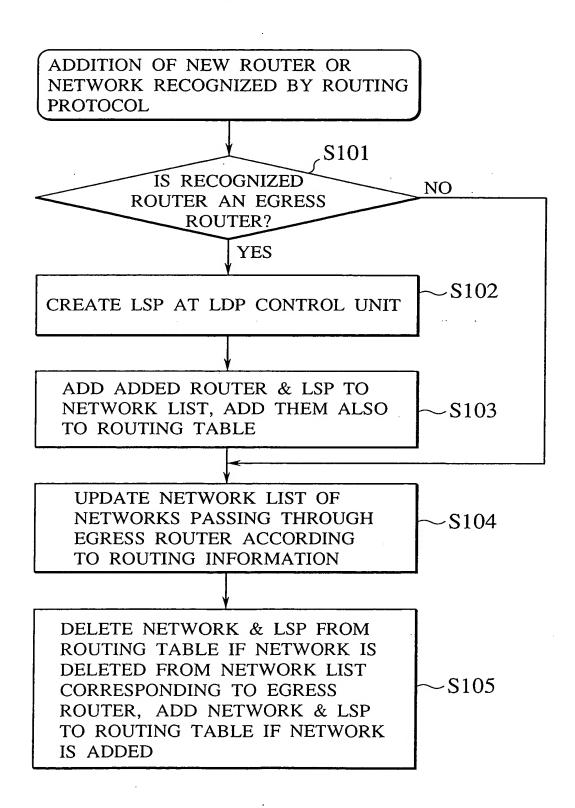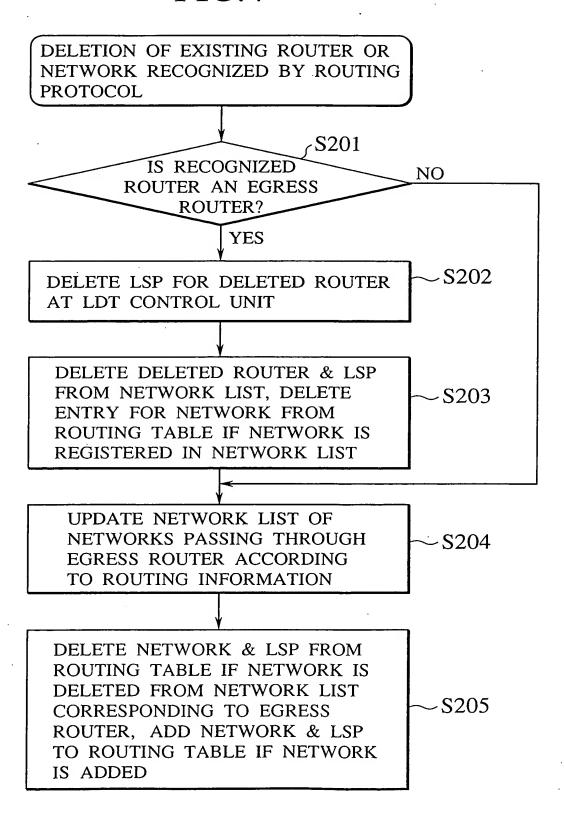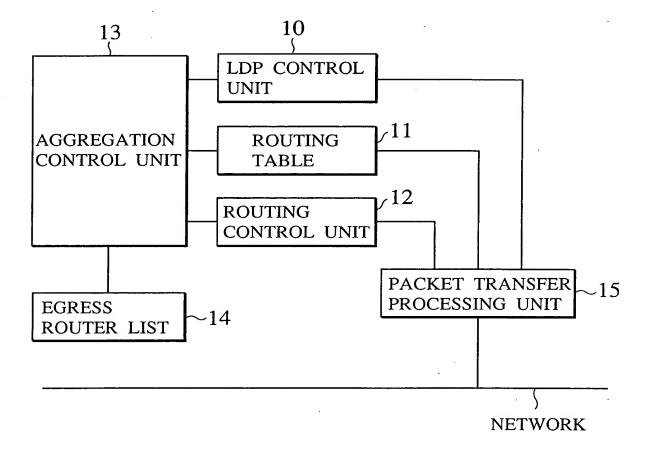DOCKET NO.: 040301-0640

3/16

FIG.3

ADDITION OF NEW ROUTER OR NETWORK RECOGNIZED BY ROUTING PROTOCOL

S101

IS RECOGNIZED ROUTER AN EGRESS ROUTER? — NO

YES

CREATE LSP AT LDP CONTROL UNIT ~S102

ADD ADDED ROUTER & LSP TO NETWORK LIST, ADD THEM ALSO TO ROUTING TABLE ~S103

UPDATE NETWORK LIST OF NETWORKS PASSING THROUGH EGRESS ROUTER ACCORDING TO ROUTING INFORMATION ~S104

DELETE NETWORK & LSP FROM ROUTING TABLE IF NETWORK IS DELETED FROM NETWORK LIST CORRESPONDING TO EGRESS ROUTER, ADD NETWORK & LSP TO ROUTING TABLE IF NETWORK IS ADDED ~S105

FIG.4

DELETION OF EXISTING ROUTER OR NETWORK RECOGNIZED BY ROUTING PROTOCOL

S201

IS RECOGNIZED ROUTER AN EGRESS ROUTER?

NO

YES

DELETE LSP FOR DELETED ROUTER AT LDT CONTROL UNIT — S202

DELETE DELETED ROUTER & LSP FROM NETWORK LIST, DELETE ENTRY FOR NETWORK FROM ROUTING TABLE IF NETWORK IS REGISTERED IN NETWORK LIST — S203

UPDATE NETWORK LIST OF NETWORKS PASSING THROUGH EGRESS ROUTER ACCORDING TO ROUTING INFORMATION — S204

DELETE NETWORK & LSP FROM ROUTING TABLE IF NETWORK IS DELETED FROM NETWORK LIST CORRESPONDING TO EGRESS ROUTER, ADD NETWORK & LSP TO ROUTING TABLE IF NETWORK IS ADDED — S205

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DOCKET NO.: 040301-0640

5/16

FIG.5

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DOCKET NO.: 040301-0640

6/16

FIG.6

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DOCKET NO.: 040301-0640

7/16

FIG.7A

EGRESS ROUTER
R4
R5

FIG.7B

DESTINATION	LSP
NETWORK A	# 3
NETWORK B	# 3
NETWORK C	# 4
NETWORK D	# 4
R4	# 3
R5	# 4
R6	# 4

FIG.7C

EGRESS ROUTER	NETWORK	LSP
R4	R4, NETWORK A, NETWORK B	# 3
R5	R5, R6, NETWORK C, NETWORK D	# 4

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DOCKET NO.: 040301-0640

8/16

FIG.8

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DOCKET NO.: 040301-0640

9/16

FIG.9A

EGRESS ROUTER
R3

FIG.9B

DESTINATION	LSP
NETWORK A	#5
NETWORK B	#5
R3	#5
R4	#5
R5	#5

FIG.9C

EGRESS ROUTER	NETWORK	LSP
R3	R3, R4, R5, NETWORK A, NETWORK B	#5

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DOCKET NO.: 040301-0640

10/16

FIG.10A

EGRESS ROUTER
R4

FIG.10B

DESTINATION	LSP
NETWORK A	# 6
NETWORK B	# 6
R4	# 6
R5	# 6

FIG.10C

EGRESS ROUTER	NETWORK	LSP
R4	R4, R5, NETWORK A, NETWORK B	# 6

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Inventor(s): Kenichi NAGAMI et al.
DOCKET NO.: 040301-0640

11/16

FIG.11

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Inventor(s): Kenichi NAGAMI et al.
DOCKET NO.: 040301-0640

12/16

FIG.12A

EGRESS ROUTER
R5

FIG.12B

DESTINATION	LSP
R5	#7
R6	#7

FIG.12C

EGRESS ROUTER	NETWORK	LSP
R5	R5, R6	#7

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Inventor(s): Kenichi NAGAMI et al.
DOCKET NO.: 040301-0640

13/16

FIG.13

⬭ AS

⬭ MPLS DOMAIN

▨ NON BGP SPEAKER

□ BGP SPEAKER

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Inventor(s): Kenichi NAGAMI et al.
DOCKET NO.: 040301-0640

14/16

FIG.14A

EGRESS ROUTER
R6
R7

FIG.14B

DESTINATION	LSP
R6	# 8
R7	# 9
R8	# 8
R9	# 9

FIG.14C

EGRESS ROUTER	NETWORK	LSP
R6	R6, R8	# 8
R7	R7, R9	# 9

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DOCKET NO.: 040301-0640

15/16

FIG.15

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Inventor(s): Kenichi NAGAMI et al.
DOCKET NO.: 040201-0640

16/16

FIG.16A

EGRESS ROUTER	
OSPF	BGP
R3	R6

FIG.16B

DESTINATION	LSP
NETWORK A	# 10
NETWORK B	# 10
R3	# 10
R4	# 10
R5	# 10
R6	# 11
R7	# 11

FIG.16C

PROTOCOL	EGRESS ROUTER	NETWORK	LSP
OSPF	R3	R3, R4, R5, R6, R7, NETWORK A, NETWORK B	# 10
BGP	R6	R6, R7	# 11